

Supplemental Online Materials

Table A1 contains information on the key Compustat variables used in the study and the filtering procedures for dealing with missing observations. To filter out the financial sector, we have excluded all firms with a Standard Industrial Classification (SIC) code starting with '6'. Furthermore, to filter out all foreign corporations we have only included firms with an ISO country code for their headquarters (LOC) of 'USA' and with a company currency code (CURCD) of 'USD'. As shown in Table A1, to remove problematic entries, we have excised all observations for a firm in any given year that records negative values for revenues, and we have dropped all firm-year observations with missing data for any of our variables other than intangibles, dividends and share repurchases as shown in Table A1. Table A2 lists the Standard Industrial Classification (SIC) codes used for sector construction, and Table A3 shows the decennial average sample size of firms for each sector.

Data item (mnemonic)	Exclude firm from a given year if variable observation missing, or impute zero to the variable?
Dividends - Total (dvt)	Impute Zero
Purchase of Common and Preferred Stock (prstk)	Impute Zero
Intangible Capital (k_int)	Impute Zero
Net Income (ni)	Exclude
Revenue - Total (revt)	Exclude
Capital Expenditures (capx)	Exclude
Common Shares Outstanding (csho)	Exclude
Price Close Annual (prcl_c)	Exclude
Property, Plant and Equipment - Total (Net) (ppent)	Exclude

Table A1. Filtering Procedures

Sector Name	SIC codes
Apparel and footwear	2250-2254, 2300-2389, 3021, 3131-3151, 5600, 5621, 5651, 5661
Autos	3711-3716
Defence and aerospace	3480, 3720-3728, 3760-3769
Food and beverage	3480, 3720-3728, 3760-3769
Fossil fuels and mining	1000-1400, 2911, 2990
Heavy industry	2800, 2810, 2860, 2870, 1520-1731, 3241-3412, 3443-3448, 3490-3569, 3612-3621
Hotels and restaurants	5810, 5812, 7000, 7011
Pharma	2833-2836, 3845
Retail	5200-5990 (except 5810, 5812, 5961)
Tech	3570-3579, 3661-3679, 5961, 4812-4822, 4841-4899, 7370-7377, 7841

Table A2. Sector Construction

	1950s	1960s	1970s	1980s	1990s	2000s	2010s
All	512	1430	3345	4579	5532	4979	3760
Apparel	13	53	149	123	141	115	70
Autos	17	38	66	61	75	57	50
Defense and aerospace	17	32	49	42	36	41	32
Food and beverage	55	105	159	118	130	111	96
Fossil fuels and mining	34	80	192	384	300	300	322
Heavy industry	113	261	470	478	507	394	311
Hotels and restaurants	3	18	74	117	137	98	70
Pharma	16	28	55	167	387	503	572
Retail	33	98	227	223	235	163	116
Tech	23	89	285	695	1162	1239	776

Table A3. Average Annual Sample Size (Number of Firms)

In compiling our dataset, we faced a dilemma as to whether to include zero-revenue companies. These firms were up until the 1970s entirely absent from Compustat universe, but from the 1980s they increased in number and now comprise 9% of the companies included in the dataset. Zero-revenue companies are usually early-stage enterprises engaged in research and development that have yet to launch their products or services. They have proliferated in recent years due to regulatory changes which have made it easier for firms to become listed on stock exchanges, and the expansion of funding from venture capital and other sources of start-up financing (Orsi and Coriat, 2006). Since these firms can often play a key, but nonetheless often subordinate, part in corporate innovation systems we deemed them worthy of inclusion. Additionally, through comparing the data for the Bottom 50% of companies with and without these firms, we found that across all four parameters in our study, there was little difference in the results (see Table A4). Therefore, the inferences we draw from our data would remain unchanged even if we elected to omit these zero-revenue firms.

As indicated in the manuscript, the apparent decline in intangible intensity in the 1970s presented in Figure 4 is actually the result of the introduction of many tangible-intensive utility companies in the dataset. We see in Figure A1 below that once these utility companies have been removed from the dataset, no reduction in intangible intensity is evident in the entire period of analysis. Beyond this, the removal of these utility firms from the dataset does not substantively change the results for the other three parameters of our analysis (net profit margins, payout-to-investment ratio, and market capitalization as a % of GDP).

One final wrinkle in the Compustat data is the absence of values for share repurchases until 1971. However, stock buybacks in the 1950s and 1960s were not the key driver of shareholder returns in the US that they are today. According to the figures of Leo Guthart ([1967](#)) (cited by [Joseph von Zanten \(2022\)](#)), stock buybacks amounted to \$300 million for all US-listed firms in 1954, but that's just roughly 6% of the \$4.9 billion spent on dividends by non-financial firms in our dataset for that year. Similarly, while Von Zanten reports that \$1.3 billion was spent on stock buybacks in the US in 1963, this is just 13% of the \$10.4 billion

spent on dividends by non-financial firms in our dataset for that year. Finally, by 1971, the first year for which we have data for both dividends and stock buybacks, we find that share repurchases amounted to just \$1.3 billion – just 7% of the \$18 billion spent on dividends (by 2019, the value of stock buybacks exceed dividends by 56% in our dataset). The lack of data on stock buybacks prior to 1971, therefore, does not grossly exaggerate the low payout-to-investment ratio that Figure 4 presents for the 1950s and 1960s.

	Average annual number (percentage) of zero-revenue firms	Bottom 50% average market value with (and without) zero-revenue firms (USD millions)	Bottom 50% percentage net profit margins with (and without) zero-revenue firms	Bottom 50% financialization ratio with (and without) zero-revenue firms	Bottom 50% intangible intensity with (and without) zero-revenue firms
Apparel & footwear					
1980s	1 (0.2)	15.8 (15.9)	0.0 (0.0)	0.38 (0.38)	3.07 (3.06)
1990s	1 (0.4)	55.6 (54.3)	0.2 (0.9)	0.33 (0.34)	3.32 (3.25)
2000s	1 (0.9)	179.3 (182.5)	1.7 (1.7)	0.60 (0.60)	3.43 (3.43)
2010s	1 (0.1)	478.5 (480.3)	1.7 (1.8)	1.04 (1.04)	3.35 (3.34)
Automotive					
1980s	1 (0.1)	28.2 (28.1)	1.6 (1.6)	0.27 (0.27)	0.90 (0.90)
1990s	0 (0)	77.7 (77.7)	2.6 (2.6)	0.18 (0.18)	1.07 (1.07)
2000s	1 (0.9)	77.8 (77.8)	-2.6 (-2.5)	0.42 (0.42)	2.16 (2.13)
2010s	2 (3.8)	250.7 (264.1)	-0.6 (-0.4)	0.52 (0.51)	1.97 (1.96)
Defence & aerospace					
1980s	0 (0)	67.6 (67.6)	6.0 (6.0)	0.46 (0.46)	1.19 (1.19)
1990s	1 (2.2)	94.4 (96.9)	5.8 (6.6)	1.00 (1.00)	1.38 (1.37)
2000s	2 (4.2)	117.9 (128.0)	2.7 (3.1)	0.76 (0.75)	2.09 (2.06)
2010s	1 (0.9)	775.6 (782.6)	5.3 (5.3)	1.18 (1.18)	3.48 (3.48)
Food & beverage					
1980s	2 (0.8)	49.9 (49.4)	3.9 (3.9)	0.33 (0.33)	1.14 (1.14)
1990s	1 (0.8)	46.0 (46.8)	0.9 (1.1)	0.26 (0.26)	1.22 (1.22)
2000s	3 (2.4)	82.8 (85.7)	-1.6 (-1.5)	0.39 (0.39)	1.52 (1.51)
2010s	5 (4.8)	191.7 (205.0)	0.2 (0.5)	0.46 (0.46)	2.37 (2.37)
Fossil fuels & mining					
1980s	11 (2.8)	12.5 (12.5)	-40.0 (-36.5)	0.08 (0.08)	0.26 (0.26)
1990s	14 (4.8)	31.7 (31.6)	-31.4 (-28.6)	0.08 (0.08)	0.17 (0.17)
2000s	38 (12.6)	79.5 (84.3)	-55.7 (-44.0)	0.10 (0.10)	0.19 (0.17)
2010s	56 (17.4)	152.0 (160.5)	-71.2 (-59.2)	0.07 (0.08)	0.18 (0.17)
Heavy industry					
1980s	4 (0.9)	17.6 (17.8)	-0.2 (-0.1)	0.35 (0.35)	1.24 (1.23)
1990s	9 (1.7)	42.6 (43.2)	-1.1 (-1.1)	0.27 (0.26)	1.57 (1.55)

2000s	15 (3.7)	110.8 (113.8)	0.9 (1.4)	0.43 (0.44)	2.24 (2.23)
2010s	11 (3.5)	369.8 (392.2)	-1.5 (-1.3)	0.38 (0.38)	1.30 (1.30)
Hotels & restaurants					
1980s	1 (0.4)	17.0 (17.1)	-1.2 (-1.2)	0.17 (0.17)	0.31 (0.31)
1990s	1 (0.8)	31.6 (31.7)	-1.4 (-1.7)	0.13 (0.12)	0.32 (0.32)
2000s	2 (1.8)	72.4 (74.6)	-2.1 (-2.0)	0.21 (0.21)	0.38 (0.38)
2010s	2 (2.4)	221.7 (232.2)	-0.8 (-0.8)	0.52 (0.52)	0.52 (0.52)
Pharm					
1980s	10 (4.0)	26.5 (25.2)	-62.1 (-55.2)	0.18 (0.19)	4.48 (4.22)
1990s	30 (7.8)	76.0 (74.9)	-336.4 (-278.4)	0.33 (0.31)	10.85 (10.27)
2000s	59 (11.8)	105.3 (107.0)	-915.4 (-752.9)	0.61 (0.50)	21.14 (19.81)
2010s	146 (25.5)	193.8 (166.8)	-4317 (-1995)	0.81 (0.73)	23.43 (21.87)
Retail					
1980s	0 (0.4%)	33.0 (33.1)	1.4 (1.4)	0.22 (0.22)	2.14 (2.14)
1990s	1 (0.7%)	78.1 (77.9)	-0.3 (-0.2)	0.24 (0.24)	2.17 (2.17)
2000s	1 (1.7%)	192.6 (196.3)	0.3 (0.3)	0.36 (0.36)	2.52 (2.52)
2010s	2 (2.9%)	623.6 (643.1)	1.4 (1.5)	0.87 (0.87)	2.01 (2.01)
Tech					
1980s	7 (0.8)	18.1 (18.2)	-6.0 (-6.1)	0.21 (0.20)	1.94 (1.87)
1990s	17 (1.5)	94.9 (97.3)	-26.5 (-26.0)	0.30 (0.30)	3.19 (3.19)
2000s	35 (2.8)	66.7 (69.3)	-46.0 (-43.9)	0.56 (0.58)	6.12 (6.30)
2010s	29 (3.8)	222.4 (236.0)	-13.8 (-13.5)	0.89 (0.70)	6.21 (6.16)

Table A4. The Number and Percentage of Zero-Revenue Firms in the Dataset and Results With and Without their Inclusion (By Sector)

Source: Compustat (2022) and Peters and Taylor (2019).

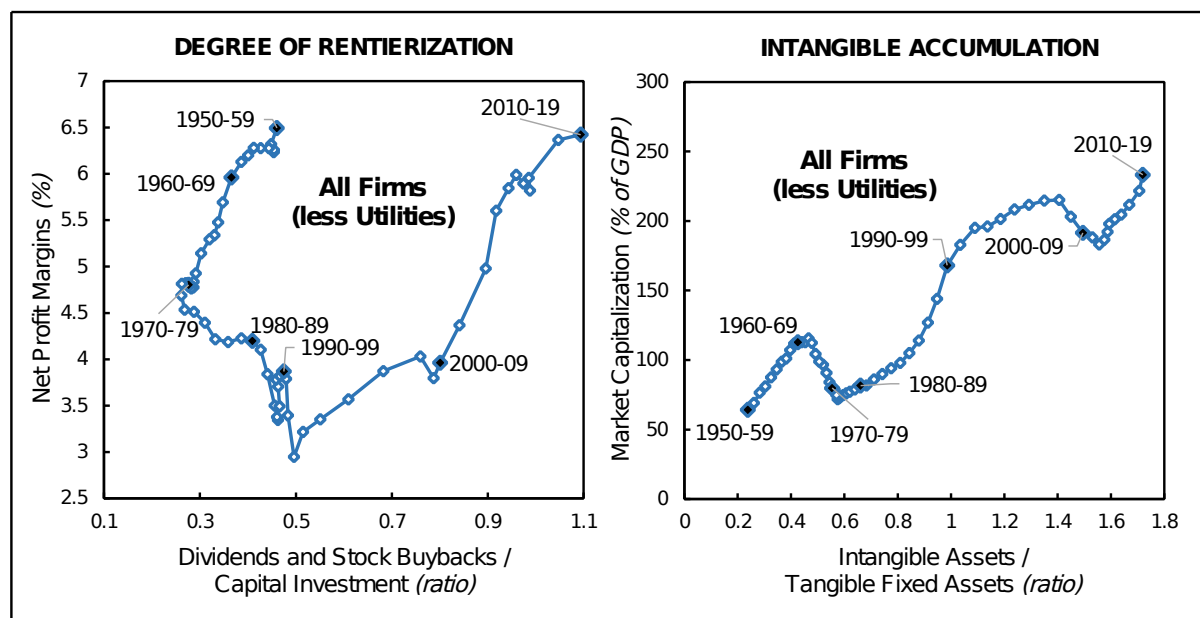


Figure A1. Rentierization and Intangible Accumulation for All US Non-Financial Firms (Less Utility Firms), 1950-2019

Source: Compustat and Peters and Taylor Total Q Series through WRDS

Note: Each data point captures the average value in a ten-year window.

